Proposed Agreement between California Energy Commission and Delta Diablo Sanitation District

Title: Bay Area Biosolids to Energy
Amount: $999,954.00
Term: 24 months
Contact: Rizaldo Aldas
Committee Meeting: 2/1/2011

Funding

FY	Program	Area	Initiative	Budget	This Project	Remaining Balance	
10	Electric	Renewables	Biosolids to Energy	$1,000,000	$999,954	$46	0%

Recommendation

Approve this agreement with Delta Diablo Sanitation District for $999,954.00 to develop, demonstrate, and implement a system or systems for converting biosolids to energy. Staff recommends placing this item on the discussion agenda of the Commission Business Meeting.

Issue

Biosolids are the principal by-product of wastewater treatment facilities produced by removing the organics from municipal sewage. The San Francisco Bay area alone generates annually more than 158,000 dry metric tons of biosolids. The existing options for using biosolids are very limited - primarily land application and alternative daily cover in landfills - and face increasing environmental challenges that may ultimately eliminate these options. For many public wastewater treatment plants, the present disposal practices frequently involve the long distance hauling of biosolids, which consumes transportation fuels, increases greenhouse gas emissions, and increases ratepayers' costs for wastewater treatment.

Existing practices for managing biosolids produced by treatment of California's wastewater are not sustainable in the long term. New innovative technology options are needed to manage biosolids. Throughout the state, virtually every community with wastewater treatment facilities must address this issue.

Background

The Bay Area Biosolids to Energy Coalition (Coalition) is a consortium of sixteen Bay Area public agencies seeking innovative, local, sustainable solutions to biosolids management by utilizing the latent energy contained in the material. The Delta Diablo Sanitation District, a local government agency located in Antioch, California, is leading the Coalition and, if approved, will lead the implementation of this project under consideration. The Coalition issued a request for qualifications (RFQ) from teams interested in developing a regional biosolids to energy facility. The RFQ also asked teams to identify proposed technologies. Sixteen Statements of Qualifications submittals were received. After a formal technical evaluation, the 16 submittals were screened down to the three most promising concepts.

The Coalition subsequently submitted an unsolicited proposal for the Energy Commission to fund the most promising of these three concepts. The concept involves a technology known as steam/carbon dioxide reforming, which has yet to be commercially demonstrated with biosolids. Demonstration of the steam/carbon dioxide reforming technology to reliably and efficiently process biosolids and produce energy will help California's wastewater treatment facilities address the technical barriers to producing energy from biosolids.

The Public Interest Energy Research (PIER) - Renewable Program Area evaluated the unsolicited proposal and determined that it meets the criteria and vision of the program and it is consistent with the guiding policy goals such as Section 25620.1 of the Public Resource Code, which directs the Energy Commission to develop, and help bring to market, energy technologies that provide increased environmental benefits, greater system reliability, and lower system costs. In recognition of the value of the unsolicited proposal, the Energy Commission prepared a letter to the Legislature seeking approval to enter into a sole-source agreement with the Delta Diablo Sanitation District through the PIER Program. On December 8, 2010, the Energy Commission sent the letter to the Joint Legislative Budget Committee, which is expected to make its decision within 60 days after this date.

Proposed Work

This project will examine a technology that has the potential to address the challenges surrounding the conversion and use of biosolids to energy. The overall goal of the project is to develop, demonstrate, and implement a system or systems for commercially converting biosolids to energy that will maximize the energy production from the biosolids and minimize the solid and liquid waste disposal requirements while meeting California's environmental standards including air emission limits. The primary initiative will demonstrate the efficacy of steam reforming technology for producing energy from biosolids to maximize energy production from the biosolids. Specific studies involving comprehensive aspects of biosolids to energy conversion include: fuel supply characterization; process design requirements; energy production; site suitability issues; economics; environmental impacts; and by-product constituents, uses, management and permitting. An implementation plan that will guide the succeeding phases such as design, installation, and operation of a biosolids to energy facility will also be developed. Beneficial use alternatives for the residual material will also be determined.

Justification and Goals

This project "[will develop, and help bring to market] advanced electricity technologies that reduce or eliminate consumption of water or other finite resources, increase use of renewable energy resources, or improve transmission or distribution of electricity generated from renewable energy resources" (Public Resources Code 25620.1.(b)(4)), (Chapter 512, Statues of 2006)).

This project also supports the general goal of SB 1250 (Perata, Chapter 512, Statutes of 2006), which states, in part, "the Public Interest Research, Development, and Demonstration Program is to develop, and help bring to market, energy technologies that provide increased environmental benefits, greater system reliability, and lower system cost, and that provide tangible benefits to electric utility customers through:

- Advanced electricity generation technologies that exceed applicable standards to increase reductions in greenhouse gas emissions from electricity generation, and that benefit electricity utility customers.
- Advanced electricity technologies that may reduce or eliminate consumption of finite resources.

This will be accomplished by:

- developing, demonstrating, and implementing a system or systems for converting biosolids to energy that will maximize the energy production from the biosolids, minimize the solid and liquid waste disposal issues, and meet California's environmental standards